ABSTRACT OF THE DISCLOSURE

A thermal actuator comprises a substantially straight beam. The beam has a beam length and a beam mid-point. The beam comprises a plurality of beam segments with beam segment lengths. Each beam segment has a beam segment neutral axis, thus forming a corresponding plurality of beam segment neutral axes. The beam segment neutral axes are offset along the beam length based on a predetermined pattern. As the beam is heated by an included heating means, the beam buckles. The buckling of the beam, in turn, causes the beam mid-point to translate or move in the predetermined direction. The beam mid-point movement, in turn, operates an included optical waveguide switch. The heating means comprises any of Joule heating, eddy current heating, conduction heating, convection heating and radiation heating.